

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT E. FONTANA, Jr.,
LINDA H. LANE, MASON L. WILLIAMS, III
and CELIA E. YEACK-SCRANTON

Appeal No. 1998-0596
Application 08/259,370¹

ON BRIEF

Before McKELVEY, Senior Administrative Patent Judge, and LEE and MEDLEY,
Administrative Patent Judges.

LEE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's rejection of appellants' claims 1-4, 20-22, 24-34, 36-43, and 45-55. Claims 1, 17 and 25 are independent claims. Claims 5-19, 23, 35 and 44 have been canceled. No claim has been allowed.

Appeal No. 1998-0596
Application 08/259,370

References relied on by the Examiner

Kant et al. (Kant)	4,670,804	Jun. 2, 1987
Ainslie et al. (Ainslie)	4,789,914	Dec. 6, 1988
Hosokawa et al. (Hosokawa)	5,014,145	May 7, 1991

The Rejections on Appeal

Claims 1-3, 21, 31-34, 36-39 and 55 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over Kant, Ainslie, and Hosokawa.

Claims 4, 20, 22, 24-30, 40-43 and 45-54 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over Kant and Ainslie.

A rejection of claims 1-4, 20-22, 24-34, 36-43 and 45-55, under 35 U.S.C. § 112, first paragraph, based on an objection to the specification under 35 U.S.C. § 132 appears to have been withdrawn by the examiner in a supplemental examiner's answer (Paper No. 29).

The Invention

The claimed invention is directed to an apparatus combination assembly including an integrated thin film slider and transducer and a thin film suspension. Representative independent claims 4 and 20 are reproduced below:

4. A combination assembly comprising:

an integrated thin film slider and transducer formed in its entirety by a process of thin film deposition and having thin film lead layers for activating said thin film transducer;

a thin film suspension formed by a process of thin film deposition of a predetermined length, a length portion at a first end of said thin film suspension being deposited on said integrated thin film slider and transducer, said thin film suspension including thin film conductor layers extending from a second end of said thin film suspension to said first end and electrically connected to the thin film lead layers of said integrated thin film slider and transducer by thin film deposition; and

each of the integrated thin film slider and transducer and the thin film suspension consisting of a plurality of thin film layers, all of the thin film layers of the integrated thin film slider and transducer extending substantially perpendicular to the thin film layers of the thin film suspension.

20. A transducer/suspension assembly comprising:

a thin film slider and transducer formed entirely by the thin film deposition and having a plurality of thin film layers including a thin film support layer, a thin film gap layer and thin film lead layers, a thickness of the thin film gap layer forming a gap length;

each of said plurality of thin film layers of the thin film slider and transducer having first and second thin film surfaces bounded by top and bottom edges and a pair of side edges, the bottom edges of the thin film layers forming an air bearing surface;

an elongated thin film suspension formed by thin film deposition of a plurality of thin film layers, each thin film layer having top and bottom thin film surfaces which are bounded by front and rear edges and a pair of side edges; and

a front portion of a bottom thin film surface of at least one thin film layer of the thin film suspension formed directly on the top edges of thin film layers of the thin film slider and transducer by said thin film deposition to form said elongated thin film suspension with thin film surfaces of said thin film layers of the suspension extending substantially perpendicular to the thin film surfaces of the thin film slider and transducer and being bonded to top edges of the thin film layers of the thin film slider and transducer by thin film deposition.

Opinion

The rejection of claims 1-3, 21, 31-34, 36-39 and 55 under 35 U.S.C. § 103 as being unpatentable over Kant, Ainslie and Hosokawa is reversed.

The rejection of claims 4, 20, 22, 24-30, 40-43, 45, 48 and 51-54 under 35 U.S.C. § 103 as being unpatentable over Kant and Ainslie is reversed.

The rejection of claims 46, 47, 49 and 50 under 35 U.S.C. § 103 as being unpatentable over Kant and Ainslie is affirmed.

The rejection of claims 1-4, 20-22, 24-34, 36-43, 45, 48 and 51-55

A reversal of the rejection on appeal should not be construed as an affirmative indication that the appellant's claims are patentable over prior art. We address only the positions and rationale as set forth by the examiner and on which the examiner's rejection of the claims on appeal is based.

The crux of the deficiency in the examiner's stated rejection lies in the examiner's failure to recognize and appreciate those structural features which result from process limitations recited in the appellants' claims. While process features which do not affect the resulting structure claimed are properly not entitled to weight in an apparatus or product-by-process claim, see, e.g., In re Thorpe, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985); In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969), they cannot be ignored when the structure of the resulting product is correspondingly modified or limited.

In In re Luck, 476 F.2d 650, 653, 177 USPQ 523, 525 (CCPA 1973), the Court of Customs and Patent Appeals stated:

[I]t is well established that product claims may include process steps to wholly or partially define the claimed product. See In re Brown, 59 CCPA __, 459 F.2d 531, 535, 173 USPQ 685, 688 (1972), and the cases cited therein. To the extent these process limitations distinguish the product over the prior art, they must be given the same consideration as traditional product characteristics. (Emphasis in original).

With regard to the appellants' claims discussed in this section, all of them require (a) an integrated thin-film slider and transducer, and (b) a thin film suspension element which is formed by thin film deposition. Furthermore, with regard to the thin film suspension formed by thin film deposition, all of these claims additionally require that a portion of the thin film suspension be deposited or formed on the integrated thin film slider and transducer. Read in light of the appellants' specification, particularly page 22, lines 15-16, page 23, lines 1-24, and Figure 7B, the only reasonable interpretation of these deposition and forming limitations provides that when forming the suspension by thin film deposition, a portion of the suspension is deposited or formed on the integrated thin film slider and transducer. As defined by these claims, the suspension element on the one hand and the slider and transducer on the other hand are directly connected by bonded thin film layers thereof upon formation of the suspension element, without need for post-formation gluing or soldering to connect the suspension element with the integral slider and

transducer.² This structural characteristic has not been recognized and accounted for by the examiner.

As is pointed out by the appellants, Kant and Ainslie each discloses a suspension element and an integral slider and transducer which must be subsequently attached to each other by glue or solder, typical of the prior art described in the appellants' specification. Even assuming the examiner is correct that Kant discloses an integral slider and transducer formed by thin film deposition, and that Ainslie discloses a suspension element formed by thin film deposition, the examiner has not explained why it would have been obvious to arrive at a structure which calls for a suspension element whose thin film is directly formed on the integral thin film slider and transducer.³

For the foregoing reasons, the rejection of claims 1-3, 21, 31-34, 36-39 and 55 under 35 U.S.C. § 103 as being unpatentable over Kant, Ainslie and Hosokawa cannot be sustained. The rejection of claims 4, 20, 22, 24-30, 40-43, 45, 48 and 51-54 under 35 U.S.C. § 103 as being unpatentable over Kant and Ainslie cannot be sustained.

² The appellants' specification, in discussing the prior art, explains that prior art assemblies have a structure made from separately produced suspension arm and integral slider and transducer which are later interconnected by gluing or soldering.

³ Hosokawa is relied on by the examiner in connection with other features of the appellants' claimed invention over which there is no apparent dispute in this appeal.

The rejection of claims 46, 47, 49 and 50

Our affirmance of the rejection of claims 46, 47, 49 and 50 is based only on the arguments presented by appellants in their brief. Arguments not raised in the brief are not before us, are not at issue, and thus are considered as waived.

Independent claim 46 is reproduced below:

46. An integrated suspension/slider/transducer assembly comprising:

a suspension;

an integrated slider and transducer mounted on the suspension, the integrated slider and transducer having an air bearing surface;

each of the suspension and the integrated slider and transducer consisting essentially of a plurality of thin film layers formed by layer upon layer of thin film depositions;

each thin film layer having first and second thin film layer surfaces which are bounded by first and second edge surfaces and first and second side surfaces; and

the air bearing surface of the integrated slider and transducer consisting of only second edge surfaces of the thin film layers of said integrated slider and transducer.

Claims 47, 49 and 50 each depend from claim 46. These four claims do not recite the features discussed above which distinguish the other claims from the combination of Kant and Ainslie. None of them requires the thin films for the suspension to be deposited or formed on the integral transducer and slider. Hereinafter, we consider the appellants' various other arguments with regard to claims 46, 47, 49 and 50.

According to the appellants, Kant's plastic sheets 42, 52 and 56 of the suspension

assembly are not thin film layers formed by thin film deposition. Note, however, that only elements 50 and 52 are plastic sheets, and layers 40, 42 and 56 are stiffeners. (Column 4, lines 47-51). Kant describes preferred stiffeners as stainless steel. (Column 5, lines 26-30). In the context of the appellants' argument, we focus on plastic sheet 52. The key is whether the structure of the plastic sheet is distinguishable from thin films formed by thin film deposition. See, e.g., In re Thorpe, 777 F.2d at 697, 227 USPQ at 966. In that regard, Kant states that the sheets 50 and 52 are "made of any type of plastic film which has a good flex life" (column 5, lines 6-7). Kant discloses polyimide as a preferred plastic material. (Column 5, lines 10-13). The appellants argue (Br. at 13):

Plastic, such as polyimide, cannot be deposited by thin film deposition. Only certain elements such as alumina, permalloy, etc. can be deposited by thin film deposition.

On that basis, the appellants argue that Kant's plastic sheets are structurally different from thin films made from thin film deposition techniques. The above-quoted assertions of the appellants, however, are not supported by evidence. We cannot simply take the appellants' arguments as established facts. Counsel's argument also does not take the place of evidence. Knorr v. Pearson, 671 F.2d 1368, 1373, 213 USPQ 196, 200 (CCPA 1982); Meitzner v. Mindick, 549 F.2d 775, 782, 193 USPQ 17, 22 (CCPA), cert. denied, 434 U.S. 854, 195 USPQ 465 (1977); In re Lindner, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972).

The appellants further argue that Ainslie's slider is not a thin film slider formed by thin film deposition. According to the appellants, Ainslie's slider is a substrate over which various thin film layers are deposited to form the transducers. But none of claims 46, 47, 49 and 50 requires that the slider itself without the transducer be formed of thin film deposition. All of claims 47, 49 and 50 depend from claim 46 which specifies that "each of the suspension and the integrated slider and transducer consisting essentially of a plurality of thin film layers formed by layer upon layer of thin film depositions." Insofar as the appellants argue that the slider portion of Ainslie's integrated slider and transducer is a single substrate section over which the layers of the transducer are deposited, it should be noted, however, that the appellants' own preferred embodiments reflect the same kind of construction.

From line 25, page 11 to line 2, page 12, the appellants' specification states: "The transducers are deposited on a relatively thick layer of alumina or other suitable material which is chosen for its ability to act as an etch stop and potential use as a slider section" (Emphasis added). In the context of the appellants' claims, read reasonably in light of the specification, the presence of a starting substrate section over which thin film depositions are made to form the integral slider and transducer appears implicit. See, for example, Figure 4A, wherein a wafer substrate is shown having a plurality of transducers deposited thereon (page 19, lines 11-12), and Figure 4B, where numeral 100 designates a wafer substrate and numeral 110 represents layers that form the transducers (page 19, lines 19-

22). Note also that from page 21, line 26, to page 22, line 1, the appellants' specification states: "The transducers 74 are deposited onto the substrate 90 in a row and column configuration as is shown in Fig. 4A." Furthermore, as is pointed out by the examiner (answer at page 11, lines 2-3), even Ainslie itself (column 4, lines 44-48) refers to its slider and head assembly as a thin film slider.

The appellants further argue that there is no motivation for one with ordinary skill in the art "to modify the thin film suspension of Kant with the slider taught by Ainslie" (Br. at 14). The argument is misplaced. The combination of a suspension and a slider was well known as is demonstrated by either Ainslie or Kant, and as is described in the Background portion of the appellants' specification. One with ordinary skill in the art would have known to put together an alternative slider with the same suspension, or an alternative suspension with the same slider. The examiner is correct that references may be properly combined for reasons other than those with which the appellants are concerned. See, In re Dillon, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (in banc), cert. denied, 500 U.S. 904, 111 S. Ct. 1682 (1991).

Claim 46 requires that the integrated slider and transducer have an air bearing surface, which air bearing surface consists entirely of only second edge surfaces of the thin film layers of the integrated slider and transducer.

The appellants argue that claim 46 is considered to be patentable over the references for the same reasons as given in support of claims 1 and 40. With regard to claim 40, the appellants states that it requires the bottom edges of the integrated thin film slider 72 and transducer 74 to form an air bearing surface as is shown in Figs. 5A and 7B. (Br. at 19). According to the appellants, “[t]here is no art teaching of an air bearing surface composed entirely of edges of thin films” (Br. at 19). The appellants’ argument is persuasive.

Claim 46 does require the air bearing surface to be formed by the “edges” of the thin films constituting the integrated slider and transducer. Specifically, claim 46 recites: “the air bearing surface of the integrated slider and transducer consisting of only second edge surfaces of the thin film layers of said integrated slider and transducer.” The examiner has failed to expressly account for this specific feature of the appellants’ claims 46, 47, 49 and 50. The examiner pointed out on page 7 of the answer that Kant’s slider 32 is mounted to the suspension with the top of slider 32 engaging the bottom of the suspension and the bottom of slider 32 forming an air bearing surface. However, the examiner has acknowledged that Kant is silent as to any thin film structure of its slider. (Answer at 8). Even if Kant’s slider has a thin film structure, the examiner has not shown any disclosure or suggestion that the air bearing surface in Kant is constituted by the collective edges of thin films as opposed to a planar surface.

Nonetheless, the examiner relied on a combination comprising Kant’s suspension

and Ainslie's slider assembly to make the rejection. Accordingly, the structure of Ainslie's slider is important. As can be seen in Ainslie's Figure 4, an exploded cross-section side view of Ainslie's thin film slider, the bottom portion forming an air bearing surface is indeed a collection of the edges of the thin films. While Ainslie's air bearing surface may comprise of portions which are not edges of thin films, claims 46, 47, 49 and 50 do not, contrary to appellants' argument (Br. at 19), require that the air bearing surface of the slider be "composed entirely of edges of thin films."

Thus, we affirm the rejection of claim 46.

With regard to claim 47, first the appellants reiterate what it recites and then conclude, without any meaningful explanation, that it distinguishes over the prior art. Merely pointing out what a claim recites, however, does not establish patentable distinction over the prior art. The appellants also state that claim 47 is further distinguished over the references for the same reasons as given in support of claim 26. The argument is rejected because the features particularly recited in claim 26 and argued specifically by the appellants are not recited in claim 47. Note that while claim 26 requires the thin film lead layers of the thin film transducer to be connected to the thin film conductor leads of the thin film suspension by thin film deposition, claim 47 has no such requirement. Claim 47 does not preclude connection by conventional means, i.e., solder. Accordingly, we affirm the rejection of claim 47.

The appellants argue that claim 49 is patentable for the same reasons claim 47 is

deemed patentable. Accordingly, we also affirm the rejection of claim 49.

With regard to claim 50, first the appellants reiterate what it recites and then conclude, without any meaningful explanation, that it distinguishes over the prior art. Merely pointing out what claim 50 recites, however, does not establish patentable distinction over the prior art. The appellants then argue that claim 50 is further distinguished over the references for the same reasons as given in support for claim 25. The pertinent claimed feature of claim 50 is that the edge surfaces of the layers of the suspension lie in a common plane with the front wall of the integrated slider and transducer. The examiner's position (answer at 9) is this -- whether the edge surfaces of the suspension layers lie in a common plane as the front wall of the slider makes no significant difference insofar as the combined suspension and slider is concerned. The examiner concludes that selection of the feature "is well within the purview of a skilled artisan" in the absence of an unobvious result (answer at 9). On page 9 of the answer, the examiner further explains:

Furthermore, providing a front thin film surface wall of the thin film slider contiguous with a common front wall plane of a suspension provide a slider/suspension arrangement that uses less material, which reduces manufacturing cost, and an even perimeter, which takes up less space and is more stable.

The examiner's rationale provides a plausible basis for the conclusion of

obviousness with respect to claim 50. The appellants have not meaningfully addressed the examiner's rationale with opposing arguments and/or evidence. Accordingly, we affirm the rejection of claim 50.

Conclusion

The rejection of claims 1-3, 21, 31-34, 36-39 and 55 under 35 U.S.C. § 103 as being unpatentable over Kant, Ainslie, and Hosokawa is reversed.

The rejection of claims 4, 20, 22, 24-30, 40-43, 45, 48 and 51-54 under 35 U.S.C. § 103 as being unpatentable over Kant and Ainslie is reversed.

The rejection of claims 46, 47, 49 and 50 under 35 U.S.C. § 103 as being unpatentable over Kant and Ainslie is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

Appeal No. 1998-0596
Application 08/259,370

FRED E. McKELVEY, Senior
Administrative Patent Judge

JAMESON LEE
Administrative Patent Judge

SALLY C. MEDLEY
Administrative Patent Judge

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